US Army Corps of Engineers
New England District

Update Report for Vermont

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Introduction/Mission

Both the New England and New York districts provide service to the residents of the Green Mountain State. New England District is responsible for all Civil Works activities within the Connecticut River Basin, while New York District handles activities in the Lake Champlain drainage area. The New England District is responsible for the entire state for the Regulatory and Defense Environmental Restoration programs, all Emergency Operations and is the Corps' lead for the Planning Assistance to States Program. This division of responsibility between the New York and New England districts is seamless to our customers because the Corps strives to provide access to all our capabilities through a "One Door to the Corps" policy. Unless specifically noted, all activities included in this Report are managed by the New England District.

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The missions of the New England District, U.S. Army Corps of Engineers include flood prevention and control, emergency response for natural disasters and national emergencies, environmental remediation and restoration, natural resource management, stream bank and shoreline protection, navigation maintenance and improvement, support to military facilities and installations, and engineering and construction support to other federal agencies. The six New England states cover 66,000 square miles and have 6,100 miles of coastline, 11 deep water ports, 102 recreational and small commercial harbors, 13 major river basins, and thousands of miles of navigable rivers and streams. The district operates and maintains 31 dams, 2 hurricane barriers and the Cape Cod Canal. We employ about 550 professional civilian employees, with about 400 stationed at our headquarters in Concord, Massachusetts. The other Corps of Engineers employees serve at Corps projects and offices throughout the region.

Flood Control Studies

WINOOSKI RIVER, MONTPELIER - Authorized by Section 309 of the Water Resources Development Act of 1992, the New York District conducted a study of the Winooski River and its Dog River, North Branch and Stevens Branch tributaries in Montpelier. A reconnaissance study, completed in 1994, examined the persistent flooding problem associated with high seasonal snow/ice melt runoff, storm event and/or ice jams in the study area. A plan to construct a series of ice retention dams and flow bypass channels was recommended. The City of Montpelier stated its intent to participate in feasibility studies; however, that support was withdrawn in October 1994. The project had an estimated cost of $2.7 million.

WINOOSKI RIVER, COLCHESTER - The New York District was to conduct a site visit to assess flooding problems and opportunities for environmental restoration along the Winooski River in Colchester under Section 205 of the Continuing Authorities Program using $100,000 in funds provided in the Senate Appropriation Act of 1998. However, the Town indicated that it had constructed emergency repairs and no other sites were identified within the study authority for flood control.

LAMOILLE RIVER - The New York District conducted a site visit along with the Vermont DEC to assess flooding problems and opportunities for environmental restoration along the Lamoille River. The Lamoille watershed forms part of the drainage divide, which separates the Connecticut and St. Lawrence river basins. Based upon initial findings and a letter of support from the Vermont Department of Environmental Conservation (VT DEC), a Section 206 study (Aquatic Ecosystem Restoration) has been proposed and endorsed by VT DEC for the Wild Branch, Lamoille River in Wolcott.

MISSISQUOI RIVER - The New York District conducted a site visit along with the Vermont DEC to assess flooding problems and opportunities for environmental restoration along the Lamoille River. Based on the initial findings and concurrence by the state, detailed studies

are now being conducted at: Black Falls Brook at Montgomery Village, a Section 205 study (Flood Control); Trout River at Montgomery Center, Section 205 study (Flood Control) and Missisquoi River at Richard, Section 14 study (Emergency Streambank Protection). *The final reports are to be forwarded to the State of Vermont by the end of June 2000. These reports will recommend continuing towards a cost shared feasibility phase for the Trout River. Moving forward with a proposal under the Section 205 program would require the ANR be the local sponsor for the project.*

MAD RIVER BASIN - During FY 1999, the New York District began assessment of flooding problems and opportunities for environmental restoration along the Mad River Basin. The New York District coordinated with the sponsor to determine the appropriate vehicle to conduct the investigation. The Mad River is located in Washington County, Vermont. The Mad River is approximately 14.5 miles in length and stretches from the Waitsfield to the Winooski River. The properties along the river are primarily low density residential and agricultural and have been damaged by past floods. Although large floods have occurred in the past, studies indicate that even larger floods are possible. *A final interim assessment report is to be forwarded to the State of Vermont by the end of June 2000. Due to the lack of widespread damages but potential for ecosystem restoration, the report will recommend a Section 206 study (Ecosystem Restoration). Moving forward with a proposal under the Section 206 program would require the ANR be the local sponsor for the project.*

NEW HAVEN RIVER BASIN - During FY99, the New York District began assessing flooding problems and opportunities for environmental restoration in the New Haven River Basin. The New York District coordinated with the sponsor to determine the appropriate vehicle to conduct the investigation. The study area is located in Addison County, Vermont. The New Haven River is approximately 15 miles in length and stretches from Baldwin Creek to the Otter Creek. The properties along the river are primarily low density residential and agricultural and have been damaged by past floods. Although large floods have occurred in the past, studies indicate that even larger floods are possible. *A final interim assessment report is to be forwarded to the State of Vermont by the end of June 2000. Due to the lack of widespread damages but potential for ecosystem restoration, the report will recommend a Section 206 study (Ecosystem Restoration). Moving forward with a proposal under the Section 206 program would require the ANR be the local sponsor for the project.*

OTTER CREEK - During FY99, the New York District began assessing flooding problems and opportunities for environmental restoration in the New Haven River Basin. The District coordinated with the sponsor to determine the appropriate vehicle to conduct the investigation. The study area is located in Rutland and Addison counties. Otter Creek flows from Lake Champlain into the Champlain Canal. The properties along the river are primarily low density residential and agricultural and have been damaged by past floods. Although large floods have occurred in the past, studies indicate even larger floods are possible. *A final interim assessment report is to be forwarded to the State of Vermont by the end of June 2000. Due to the lack of widespread damages the report will recommend no federal interest under Section 205.*

Navigation

BURLINGTON HARBOR - The New York District participated in a site visit of Burlington Harbor in November 1997. The Corps and the City of Burlington examined the breakwater in the harbor, which was constructed by the Corps of Engineers in 1890. The Corps requested operation and maintenance funds to repair the existing breakwater. Funds were provided in the FY 99 budget and an initial investigation of the breakwater was performed by New York District. *The contract for repair of the breakwater is expected to be awarded in this fiscal year (2000).*

Environmental Restoration

BURLINGTON HARBOR - The New York District participated in a site visit of Burlington Harbor in November 1997. The Corps and the City of Burlington examined numerous sites along the waterfront that appeared to have potential for environmental restoration. It appeared that additional studies for environmental restoration may be warranted under either Section 206 or Section 1135 of the Continuing Authorities Program and under General Investigation studies, if authorized.

COPPERAS BROOK (ELIZABETH MINE) - Elizabeth Mine, an abandoned mine in Vermont, was developed in the early 1800s for copperas (iron sulfate) production and subsequently (1830s to 1958) mined for copper. The site is about 100 acres in size with about 40 acres of unvegetated mine tailings. Drainage of water over and through the mine tailings piles to Copperas Brook produces runoff that has had a toxic influence on the downstream aquatic communities in the west branch of the Ompompanoosuc River.

At the request of the State of Vermont and as directed in FY 1999 Energy and Water Appropriations Bill, the Corps explored the possibility of conducting a restora-

tion project at the site. The project was to be conducted under the authority provided in Water Resources Development Act of 1996 Section 206 "Aquatic Ecosystem Restoration." Several meetings were held with the Vermont Agency of Natural Resources (ANR) and EPA. Initial meetings identified that issues at the site were complex and potentially involved hazardous and toxic materials covered under the Federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This act is administered by EPA and is more commonly known as the Superfund program. One of the limitations of the Section 206 program is that any remediation of hazardous and toxic materials is the local sponsor's responsibility. As a result of this requirement, the ANR turned to the EPA for remediation assistance. Currently the site is being looked at be EPA under the "Superfund Program." An EPA report is expected January 2001.

Once this report is issued, the Corps can determine if there is any work that might be eligible under the Section 206 program. Moving forward with a proposal under the Section 206 program would require the ANR be the local sponsor for the project.

Work for the Environmental Protection Agency (Superfund)

The New England District is designated as the Corps of Engineers total support agency for the Environmental Protection Agency's (EPA) Region 1 (New England) Superfund program for those federal-lead projects assigned to the Corps by EPA. This includes responsibility for design and/or construction execution of remediation projects. In addition, the District is providing technical assistance upon request to EPA New England for other federal-lead projects assigned by EPA to private firms as well as for some Potentially Responsible Party (PRP) remediation.

POWNAL TANNERY SITE, NORTH POWNAL - The Pownal Tannery Site is located in the Village of North Pownal, in Bennington County. The Site was a former hide tanning and finishing facility owned by the Pownal Tanning Company and has been inactive since 1988 when the company ceased operations. The Site consists of three contamination sources: the tannery building complex, a lagoon system and the tannery's sludge landfill. In total, the Pownal Tannery Site encompasses approximately 28 acres.

The New England District is completing a non-time critical removal action at this site. This removal action includes the demolition and disposal of the tannery buildings, the excavation and disposal of contaminated sludge and soil in the basement of the tannery complex and construction of a RCRA cap at the landfill. The removal action will be completed in the summer of 2000 at an estimated cost of $7.9 million. Subsequent EPA efforts will address the other environmental and public health issues associated with the site.

Work was initiated in April 1999. The tannery has been demolished and all building debris and contaminated soil has been disposed of. Ongoing work involves site restoration and construction of the final cap on the landfill.

***ELIZABETH MINES, SOUTH STRAFFORD** – The site is an abandoned copper and iron-sulfate mine that operated from 1806 until its closure in 1958. The mining operations consisted of open-pit type mining. The mine workings were abandoned without any closure measures to restrict access or prevent runoff from entering the mine. In addition, there are about 40 acres of exposed tailings piles which are still producing acid mine drainage. This acid runoff is causing water quality problems in receiving waters of the drainage, Copperas Brook, and downstream in the West Branch of the Ompompanoosuc River.*

We have been tasked with performing a non-time critical removal action at this site to eliminate the risk posed by the exposed tailings piles. The first phase of work is underway and involves approximately $500,000 of ecological sampling which will be followed by the preparation of an Engineering Evaluation/Cost Evaluation (EE/CA) report. The EE/CA is currently scheduled for completion in January 2001.

Defense Environmental Restoration Program

This Congressionally directed program (PL 98-212) provides for an expanded effort in environmental restoration. It emphasizes the identification, investigation and prompt cleanup of hazardous and toxic waste; unexploded ordnance; and unsafe buildings, structures and debris at current and former military facilities. Thirteen formerly used Defense sites have been identified and investigated in Vermont, including nine where no work was found to be necessary.

REMEDIATION - Contracts (remedial actions) totalling $339,000 have been completed for formerly used facilities at **Burlington International Airport, Fort Ethan Allen in Burlington, and the St. Albans and Lyndonville Air Force** stations. Follow up investigations at the **St. Albans and Lyndonville Air Force Stations** concluded that minor residual contamination is present. The Corps is working with the state regarding remediation alternatives at the sites.

Planning Assistance

Cost sharing (50/50) for the Section 22, Planning Assistance to States Program has presented challenges to the state in identifying funds that would be used for the nonfederal contribution. The state's interest in the program continues, and it plans to identify future needs within the state.

LAKE BOMOSEEN SHORELINE/STRUCTURE ICE DAMAGE STUDY – The Corps of Engineers, New England District, in conjunction with the Army's Cold Regions Research and Engineering Laboratory (CRREL) have initiated a Planning Assistance Study with the Vermont Department of Environmental Conservation. The study will determine the effect and severity of ice interaction with shoreline and/or structures on the westerly shoreline of Lake Bomoseen. The study will also investigate what shoreline areas on Lake Dunmore are being affected by ice damage. The study will produce a manual for the contractor/homeowner that gives simplified guidelines on how to minimize ice damage when proposing construction for new or existing shoreline structures. This cost shared (50/50) effort, between the Corps and the State of Vermont, was initiated in November 1999 and will be completed by October 2000.

Flood Plain Management

DAM BREACH ANALYSIS, LAKE CHAMPLAIN DRAINAGE AREA - The New York District, in conjunction with the State of Vermont, has utilized the Flood Plain Management Program to conduct dam breach analyses throughout the Lake Champlain drainage area. Over the past decade, the District has prepared 27 such studies and currently is involved with three ongoing studies for the East Barre, Waterbury and Wrightsville dams. *Final reports are to be provided to the VT ANR in September 2000.*

DAM BREAK ANALYSIS, LAKE RUNEMEDE, WINDSOR -The New England District is performing a dam break study for Lake Runemede. Surveys and the analysis have been completed. A final report was completed in February 2000.

FIRST FLOOR ELEVATION SURVEYS, WINDSOR - The State of Vermont requested the New England District to conduct, under the Flood Plain Management Services program, an investigation of first floor flood elevations for the town of Windsor, Vermont. The study involves performing a first floor elevation survey of approximately 200 structures located within the 100-year floodplain for an area in the vicinity of the downtown area of Windsor. The Corps will provide the survey information and corresponding ownership information to the State of Vermont in July 2000.

Regulatory

STATISTICS - *At the end of March, there were 100 active applications for regulated work in Vermont. During April, 23 new applications were received. Final actions were taken on 24 applications, including three general permits, and no denials. The balance at the end of April was 99 active files.* The New England District routinely processes 95% of all permit applications in less than 60 days.

PROGRAMMATIC GENERAL PERMIT - The New England District has comprehensive Programmatic General Permits (PGPs) in place in each of the six New England states covering work with minimal impact on the aquatic environment. Up to 98% of all permits issued in New England are PGPs. The PGPs are based on the state thresholds for most categories of environmental impacts, and applicants generally need only file with the state. The federal screening is virtually transparent to applicants, and the PGP approval is either included in the state approval letter or mailed simultaneously. Applications appropriately covered under the PGPs are generally approved in under 30 days. Applicants have commented favorably about the simplicity, predictability and efficiency of the PGPs.

The New England District is proposing an amendment to the Vermont General Permit which will establish abbreviated notification procedures for emergency situations. While these changes were prompted by natural disasters in the state over the past several years, they will also facilitate a streamlined response to remedial action needed to address other emergency situations, such as oil or gas spills. *A public notice on the amendment will be issued in mid-June for a 30-day public comment period.*

VERMONT AGENCY OF TRANSPORTATION ROUTE 9 RECONSTRUCTION – We are currently processing an application for the reconstruction of about 3.6 miles of Vermont Route 9 in Searsburg and Wilmington. Route 9 is the major east-west route in the southern part of the state. This project will involve the rechannelization of about 1,200 linear feet of the Deerfield River and impacts to Harriman Reservoir and numerous wetlands. The project is being coordinated using our Highway Methodology. Efforts to resolve EPA concerns with the project are ongoing.

VERMONT AGENCY OF TRANSPORTATION ROUTE 78 RECONSTRUCTION – Preapplication consultation is ongoing for the reconstruction and widening, essentially on alignment, of about six miles of Vermont Route 78 between Swanton and Alburg. The existing highway passes through the Missisquoi National Wildlife Refuge. Route 78 is a major truck route from Interstate 89 in Vermont to Interstate 87 in New York. The project is being coordinated using our Highway Methodology.

VERMONT AGENCY OF TRANSPORTATION BENNINGTON BYPASS – A provisional permit was issued for the Bennington Bypass Highway in 1998. Authorization for the construction of the western segment of the highway, a portion of which is in New York State, was granted last year. A groundbreaking ceremony for the western segment of the highway was held last November, and construction of this portion of the project commenced in March 2000. Construction of the compensatory mitigation site for the entire project is scheduled to start this summer.

Flood Control Dams

The New England District has constructed and now operates and maintains five flood control dams in Vermont. In addition to flood control activities, the Corps also manages the natural resources at these projects for multiple uses such as recreation and wildlife management. Information on each is provided below.

BALL MOUNTAIN DAM on the West River in Jamaica was constructed at a cost of $11 million in 1961. The 915-foot-long, 265-foot-high dam can impound a 54,600-acre-foot reservoir which is equivalent to 17.8 billion gallons of water. During the 1987 floods, Ball Mountain Dam utilized 100% of its storage capacity and prevented damages of $18.3 million. Since it was placed in operation in 1961, it has prevented damages of $97 million. The reservoir area offers fine recreational opportunities, including swimming, picnicking, fishing, hunting, canoeing, nature study and camping at Winhall Brook Camping Area in South Londonderry. This popular camping area offers 111 sites for tent or RV campers; some sites have hookups and others have lean-to shelters for rent. In 1999, Ball Mountain welcomed more than 130,000 visitors.

NORTH HARTLAND DAM on the Ottauquechee River in Hartland was completed in 1961 at a cost of $7.3 million. The 1,640-foot-long, 185-foot high earthen structure can impound a 1,100-acre lake capable of storing 23.2 billion gallons of water, and the facility has prevented damages to date of nearly $80.5 million. More than 377,000 visitors annually enjoy picnicking, swimming, fishing, hunting, hiking, and snowmobiling available at the 1,467-acre North Hartland reservation. The New England District and the State of Vermont are partners in the management of the reservoir. Vermont manages Quechee Gorge State Park in the upper third of the reservoir and provides a campground, picnic facilities and trails for the visiting public. The New England District operates a large day-use area on the shore of North Hartland Lake with a developed beach area, picnic facilities and athletic fields.

NORTH SPRINGFIELD DAM on the Black River in North Springfield was completed in 1960 at a cost of $6.8 million. A 1,200-acre lake, capable of storing 16.5 billion gallons of water can be impounded by the 2,940-foot-long, 120-foot high earthen dam. More than $84.4 million in flood damages have been prevented by North Springfield Dam. Picnicking, swimming, hiking, hunting, fishing, and snowmobiling are enjoyed at the 1,372 acres of land and water by more than 10,000 visitors each year.

TOWNSHEND DAM on the West River in Townshend is 1,700 feet long, 133 feet high and cost $7.4 million to construct. Its lake can hold a 33,200 acre-foot reservoir with a capacity to store 10.8 billion gallons of water. It has prevented damages totalling $62.5 million since it was placed in operation in 1961. The reservoir area offers fine recreational opportunities, including swimming, picnicking, fishing, hunting, canoeing, boating and nature study and annually attracts nearly 29,000 visitors. Townshend Lake, in conjunction with Ball Mountain Lake, provides scheduled white water releases in the spring and fall. Over 800 canoeists, kayakers and rafters take advantage of each event.

UNION VILLAGE DAM on the Ompompanoosuc River in Thetford is a 1,100-foot-long, 170-foot-high earthen structure capable of storing 12.3 billion gallons of water in a 740-acre lake. Construction on the $4 million dam was completed in 1950, and since that time the facility has prevented damages of more than $30.3 million. More than 19,000 visitors annually enjoy the picnicking, swimming, hiking, fishing, hunting and snowmobiling available on Union Village's 983 acres of land and water.

In addition, the New York District designed three dams in the Lake Champlain drainage area during the mid 1930s. These include **EAST BARRE DAM** on the Jail Branch of the Winooski River in Barre, **WATERBURY DAM** on the Little River in Waterbury, and **WRIGHTSVILLE DAM** on the North Branch of the Winooski River in Montpelier. These dams were constructed by the Civilian Conservation Corps under the direction of the New York District, and all are operated and maintained by the State of Vermont.

Dam Safety Assurance Program

WATERBURY DAM, WATERBURY *- The New England District is assisting the New York District in studying seepage problems at Waterbury Dam. As part of that effort, a Dam Safety Report and an Environmental Assessment are being prepared for the work and will be the topic of a meeting scheduled for June 13, 2000, at the Thatcher Brook Primary School.*

Waterbury Dam, built by the Civilian Conservation Corps during the 1930s under U.S. Army Corps of Engineers supervision, was constructed on and over a natural gorge of the Little River about two miles from its confluence with the Winooski River. The dam is operated and maintained by the State of Vermont. The dam was constructed of compacted earthfill with a clay core, covered with two feet of rock riprap, and it provides flood control benefits for the Little and Winooski river basins during major rainfall events. The 860-acre Waterbury Reservoir and surrounding lands is a popular recreation area. The project also includes a hydropower facility operated by Green Mountain Power. Borings conducted at the dam in the mid-1980s by the Army Engineers revealed less compacted areas and voids in that portion of the dam which rests on and over the Little River gorge. This situation allows seepage of water through the dam, causing piping, boils and internal erosion problems.

A number of alternatives to correct this problem are being evaluated. These include doing nothing; removing the entire dam structure; building an entirely new dam; implementing partial corrective measures including reducing water levels and adding impervious blankets or filters; and rehabilitation to include installing cutoff walls, reconstructing the entire gorge section and building a multi-stage filter shaft at the gorge.

In addition to receiving comments at the meeting, written statements will be accepted until June 26, 2000.

Recreation and Natural Resources Management

The Corps of Engineers is responsible for the conservation of natural resources held in public trust at civil works water resources projects. In some areas, management is delegated to the states for specific purposes, e.g., campgrounds, wildlife management and forestry. The Corps also works with state and local officials and the public to ensure that the Corps projects meet their recreation and natural resources needs.

MASTER PLAN UPDATES - The New England District is updating master plans for Ball Mountain, Townshend and North Hartland Lakes. The North Hartland Lake draft Master Plan was distributed for public review and a public meeting was held in June 1999. Public and other comments were incorporated, and the Master Plan was completed in December 1999. *Master Plan drafts are being developed for Ball Mountain and Townshend lakes and will be coordinated for public review during the summer of 2000.* Public input for the drafts was provided through workshops and other meetings that were initiated in 1998. *The master plan updates for Ball Mountain and Townshend lakes are scheduled for completion during the fall of 2000.*

Special Studies

LAKE CHAMPLAIN AQUATIC PLANT CONTROL PROGRAM - Authorized by the River and Harbor Act of 1958, the Aquatic Plant Control Program for Lake Champlain provides for the control and eradication of aquatic plants in navigable waters, tributary streams, connecting channels and other allied waters in the interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health, and related purposes. Approximately 1,615 acres of aquatic plants, water chestnuts and Eurasian water-milfoil infest the Lake Champlain Basin. Unharvested acreage of these foreign plants is a constant source of future infestation and requires removal, since they have adverse effects on navigation and the ecosystem, especially native aquatic plants. *Funds ($311,000) were allocated in FY 2000 to conduct cost-shared (50-50) planning and control operations work within the Lake Champlain basin. A Project Cooperation Agreement between the New York District (NYD) and the Vermont Department of Environmental Conservation (VT DEC) is being coordinated to allow the harvesting program to be performed.* The Waterways Experiment Station lab is performing research work in Vermont this fiscal year.